

REMARKS

This paper is responsive to any paper(s) indicated above, and is responsive in any other manner indicated below.

DRAWING OBJECTIONS/CORRECTED FORMAL DRAWING SHEET

With regard to the "Drawings" section on page 2 of the Office Action, submitted herewith is a FORMAL drawing sheet amended to separately label ones of the FIGS 18A and 18B. As the following is believed to obviate all the listed concerns, reconsideration and withdrawal of the objection to the drawings are respectfully requested.

DRAWING OBJECTIONS/SPECIFICATION ADJUSTED

With regard to the section numbered "4" on page 2 of the Office Action, appropriate locations of Applicant's specification have been amended to correct the erroneous reference numeral(s) and/or to include mention of the previously-unmentioned reference numeral(s). . As the following is believed to obviate all the listed concerns, reconsideration and withdrawal of the objection to the drawings are respectfully requested.

ABSTRACT OBJECTION - REPLACEMENT ABSTRACT SHEET

The abstract has been objected to because of the Office Action concerns listed within the page 3 of the Office Action. As the attached replacement abstract sheet is

believed to be of proper form, reconsideration and withdrawal of the objection to the abstract, are respectfully requested. In the event that the present replacement abstract is itself found not to be of proper form, the Examiner is herein authorized to amend to a suitable replacement abstract. With respect to any past, present or any ultimately implemented Abstract or amendment thereof, Applicant would like to reiterate and embrace the 37 CFR 1.72(b) provisions that "The abstract will not be used for interpreting the scope of the claims."

DISCLOSURE/SPECIFICATION AMENDMENTS

The disclosure has been objected to because of the Office Action concerns listed within the section numbered "7" on page 3 of the Office Action. As the disclosure/specification has been carefully reviewed and has been amended where appropriate in order to address each of the Office Action listed concerns, That is formulas 1-3 have been corrected as requested within the Office Action. It is respectfully submitted that such correction is not new matter, given the fact that such formulas were known by those skilled in the art, as evidenced by the two methanol publications submitted herewith. Reconsideration and withdrawal of the objection to the disclosure are respectfully requested.

REJECTION UNDER '112, 2ND PAR. OBVIATED VIA CLAIM AMENDMENT

Claim 7 has been rejected under 35 USC '112, second paragraph, as being indefinite for the concerns listed within the section numbered "9" on page 4 of the

Office Action. Such claim has been carefully reviewed and carefully amended where appropriate in order to address the Office Action listed concerns. As the foregoing is believed to have addressed all '112 second paragraph concerns, reconsideration and withdrawal of the '112 second paragraph rejection are respectfully requested.

ALL REJECTIONS UNDER 35 USC '102 AND '103 - TRAVERSED

All 35 USC rejections are respectfully traversed. However, such rejections have been rendered obsolete by the present clarifying amendments to Applicant's claims, and accordingly, traversal arguments are not appropriate at this time. However, Applicant respectfully submits the following to preclude renewal of any such rejections against Applicant's clarified claims.

All descriptions of Applicant's disclosed and claimed invention, and all descriptions and rebuttal arguments regarding the applied prior art, as previously submitted by Applicant in any form, are repeated and incorporated hereat by reference. Further, all Office Action statements regarding the prior art rejections are respectfully traversed. As additional arguments, Applicant respectfully submits the following.

In order to properly support a '102 anticipatory-type rejection, any applied art reference must disclose each and every limitation of any rejected claim. The applied art does not adequately support a '102 anticipatory-type rejection because, at minimum, such applied art does not disclose (or suggest) the following discussed limitations of Applicant's claims.

One important feature of Applicant's clarified claims is a filler material within Applicant's hollow support, where the filler material is absorbent to assimilate and deliver liquid fuel (e.g., methanol) continuously and efficiently to the anode. Applicant's filler material may assimilate and deliver liquid fuel, for example, by having an affinity for the liquid fuel, and allowing capillary action to always impose the liquid fuel to a surface of the anode. Such filler material may be, for example, glass, alumina, silica alumina, silica, non-graphite carbon, cellulose and water absorbing polymeric fiber.

None of the applied references disclose or suggest that a liquid holding material is filled into the hollow support as in the present invention.

In addition to the foregoing, the following additional remarks from Applicant's foreign representative are also submitted in support of traversal of the rejection and patentability of Applicant's claims.

In the present invention, liquid fuel is used, and a holding material for holding the liquid fuel is filled into the hollow support, and the anode, electrolyte membrane and cathode are disposed on the outer peripheral surface of the hollow support as shown in Fig. 1. As a result, wall surface of the cell is efficiently utilized so that a larger number of generator sections can be installed in a fuel cell without increasing the volume of the cell. In other words, the fuel cell can be made compact without increasing the area of the generator sections.

JP 2000-268836 ('836) discloses a power generating device wherein a space for accommodating a liquid fuel is a liquid storage part, and a liquid fuel impregnation part is provided adjacent to a negative electrode.

In contrast, as described above, the fuel cell of the present invention comprises a hollow support. Thus, the present invention is clearly different from '836 in the structure, and hence is novel over '836. Moreover, the above-mentioned advantage attained the presently claimed structure is not disclosed or even suggested by '836 so that the present invention is unobvious from '836.

US 5,458,989, WO 99/60642 and US 6,007,932 each disclose a cell which uses a gaseous fuel and has a hollow support through which gaseous fuel passes to generate electric power.

In order to generate electric power by use of liquid fuel as in the present invention, the liquid fuel always has to be in contact with an anode because of its liquidity. Furthermore, when a fuel tank has hollow support structure as in the present invention, unless provisions are made, an entirety of the surface of the anode may not be in contact with the anode depending upon fuel consumption or inclination of the fuel tank. Such failure in contact of the liquid fuel with the surface of the anode lowers an efficiency/operation of electric power generation of the cell.

Therefore, in the present invention, a liquid fuel holding material is filled into the hollow support to supply the liquid fuel to the anode utilizing, for example, a capillary force of the holding material.

As described above, these cited references are directed to gaseous fuel cells, and hence do not mention a liquid holding material. Accordingly, the present invention is novel and unobvious over the references.

Even assuming arguendo that US 2002/0182475 and US 4,774,153 each disclose a liquid fuel cell having hollow support structure, none of these references disclose or suggest that a liquid holding material is filled into the hollow support as in the present invention. Thus, in these references, there cannot be attained the advantages of the present invention that the surface of the anode is always in contact with the anode regardless of fuel consumption or inclination of the fuel tank.

Therefore, the present invention is novel and unobvious over the references.

US 6,326,097 discloses an electric device having a small fuel cell, and does not disclose or suggest a fuel cell having the presently claimed structure. As described above, JP 2000-268836 and the other cited references are entirely irrelevant to the present invention. Therefore, the present invention is unobvious from the combination of the references, and hence is patentable thereover.

As a result of all of the foregoing, it is respectfully submitted that the applied art would not support a '102 anticipatory-type rejection or '103 obviousness-type rejection of Applicant's claims. Accordingly, reconsideration and withdrawal of such '102 and '103 rejections, and express written allowance of all of the rejected claims, are respectfully requested.

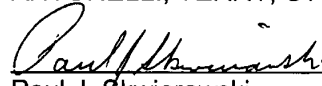
T. KAMO, et al., 09/935,164
Amdt. dated 26 September 2003
Reply to Office action of 26 June 2003

500.40553X00/E6146-01CI
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Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 500.40553X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP



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Attachments

Corrected FORMAL drawing sheet
"Brian K Niece" publication
"Direct Methanol Fuel Cell" publication